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00-75

June 29, 2000

Mr. Dale Hatfield
Office of Engineering and Technology
Federal Communications Commission
445 12th Street, N. W.
Room 7-A-340
Washington, DC 20554

Re: **Final Service Disruption Report**

Dear Mr. Hatfield:

Pursuant to the requirements established in the Report and Order in CC Docket No. 91-273 (Amendment of Part 63 of the Commission's Rules to provide for Notification by Common Carriers of Service Disruptions), **Southwestern Bell** submits the attached **Final** Service Disruption Report associated with a service disruption in **Yukon, Oklahoma on May 30, 2000**.

An Initial Service Disruption Report was faxed to the FCC's Monitoring Watch Officer on that date.

Please stamp and return the provided copy to confirm your receipt. Please contact me if you have questions regarding this service disruption.

Sincerely,

for Jonathan J. Boynton
Enclosures

CC: Bob Kimball
Kent Nilsson

Southwestern Bell

A member of the SBC global network

Retention Period: 6 Years

FCC SERVICE DISRUPTION REPORT

Type of Report: ☐ Initial Report ☐ Update ☒ Final

Occurred: Date: 5/30/2000 Time: 03:53 CDT

Ended: Date: 5/30/2000 Time: 05:02 CDT

Duration (in minutes): 69 minutes

FCC Log Number: 00-075

☐ 50,000 or More Customers
☒ 30,000 - 49,999 Customers
☐ Fire incident ≥ 1,000 lines

Special Offices/Facilities
☐ 911
☐ Major/Medium Airport
☐ NCS Request

Geographic Area Affected: Yukon, Oklahoma

Estimated Customers Affected: 35,837

Type(s) of Services Affected:
☐ Local (Intraoffice) ☒ IntraLATA ☒ InterLATA ☐ 800
☐ LIDB ☐ Operator Services ☒ Interexchange ☒ Switched Access (interoffice)
☐ Cellular ☐ International ☐ E911/911 ☐ FAA ☐ All

Estimated Blocked Calls: 1,624

Apparent or Known Cause of the Outage: At 03:53:27 CDT, on Tuesday, May 30, 2000, the Yukon North, Oklahoma central office and 5 remotes were isolated from the toll network due to a Symmetricom Secure 7 hardware failure. The MicroProcessor Unit (MPU) in the Symetricom Secure 7 shelf incurred a power anomaly during a MPU recovery and ceased functioning. The Secure 7 shelf carried both 'A' links back to the local network SS7 (Signaling System 7) STP's (Signaling Transfer Points).

Prior to the outage, an electrical contractor (Essential Power, Inc.) was running and terminating leads identified in an engineering MOP (Method of Procedure) from a recently installed second BDFB to critical equipment. At 03:31:49, the NMA (Network Monitoring and Alarm) system reported a Minor Power Alarm to two bays of Fujitsu optical transport equipment. At 03:53:24, another Minor Power Alarm on the two bays was received. At 03:53:27, NMA generated an Optical Loss alarm on an OC3 (Optical Carrier 3) system. This is the same time as the Secure 7 shelf failure was recorded. The Fujitsu optical transport equipment was in alarm for approximately 15 minutes, per scheduled activity. When the on site communications technician was notified of the outage he looked at the Secure 7 shelf, which shares a common power buss with the Fujitsu equipment, and noted that it had not automatically recovered from a power anomaly, per design. The

MPU card was removed and reinserted into the Secure7 shelf to restore service at 05:02 CDT.

In a SBC laboratory environment, a Secure 7 shelf has been subjected to a loss of power. While the MPU is recovering another loss of power is created. When this happens, the MPU will lock up and the shelf is out-of-service. The MPU has been identified as the critical single source of failure when the aforementioned event occurs. When the MPU is allowed to recover normally after a single loss of power, no seizures were noted. An engineering complaint has been filed with Symmetricom.

There was no impact to E911 and there was no media coverage of the event.

Root Cause is Design -Hardware, Insufficient Component Redundancy/Diversity.

Name and Type of Equipment Involved: Symetricom Secure 7

Specific Part of Network Involved: Toll Network

Methods used to Restore Service: Reseated MPU processor card in Secure7 shelf.

Steps Taken to Prevent Recurrence:

1. A formal engineering complaint was filed with Symmetricom concerning the loss of functionality on the Secure 7 shelf during a recovery and the incursion of a power anomaly during the recovery.
2. An engineering Method Of Procedure (MOP) will be issued to run diverse power leads to the Symmetricom Secure 7 shelf.
3. A Transport Technical Support (TTS) Flash was distributed to all transport personnel in Southwestern Bell notifying them of the event and the appropriate restoration action to take when a failure occurs.

Applicable Best Practice: Southwestern Bell reviewed the Network Reliability: A Report to the Nation, Section B, dated June 1993 and Network Reliability: The Path Forward, Focus Group I, Network Reliability Performance, dated April 1996 and evaluated all recommendations and best practices. Based on the Root Cause analysis the most appropriate focus area is:

Signaling Network Systems Committee Technical Paper
Reference: 6.1.2.1
Service Provider's Responsibilities

- Service providers should inform their Vendor/Manufacturer of defects and potential defects discovered during testing and daily operation.

Reference: 6.2.1.5
CCS Signaling Link Element Diversity (Checklist)

- Power and Fusing. No components of a paired CCS link transmission path should share a common fuse or load.

Best Practices Recommendation
Reference: 8.1
SN07 - Signaling
- Maintain A-link Diversity

Best Practices Used: Southwestern Bell observes those practices that are consistent with providing outstanding customer service.

Analysis of Effectiveness of Best Practices: The supplier has been notified of a software deficiency that was recreated in a laboratory environment. An engineering order was issued to run diverse power leads to the Symmetricom Secure 7 shelf. Transport personnel in Southwestern Bell have been notified of the correct actions to take if a similar event occurs.

Prepared by: Jim Lankford
Date submitted: 6/28/2000

Telephone: (210) 886-4589
Time: 15:30 CDT

00-75

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A member of the SBC global network

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FCC SERVICE DISRUPTION REPORT

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☐ LIDB ☐ Operator Services ☒ Interexchange ☒ Switched Access (interoffice)
☐ Cellular ☐ International ☐ E911/911 ☐ FAA ☐ All

Estimated Blocked Calls: 1624

Apparent or Known Cause of the Outage: At 03:53 CST, on Tuesday, May 30, 2000, the Yukon North central office and 5 remotes were isolated from the toll network due to a failure of the Secure7 system transporting both "A" links back to the STP's. Service was restored at 05:02 CST by reseating the processor card (MPU) in the local Secure7 shelf.

Name and Type of Equipment Involved: Symetricom Secure7

Specific Part of Network Involved: Toll Network

Methods used to Restore Service: Reseated processor card in Secure7 shelf.

Steps Taken to Prevent Recurrence: Under Investigation.

Applicable Best Practices: Under Investigation.

Prepared by: Jim Lankford
Date submitted: 5/30/2000

Telephone: (210) 886-4589
Time: 15:35 CST

☐ **Official File Copy, If Checked In Red**